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(54) Title: STRONG AND DISPERSIBLE PAPER PRODUCTS

(57) Abstract: The invention relates to a flushable paper product comprising a fibrous substrate having (i) at least one strength region comprising a reacted cationic or a reacted nonionic strength agent and (ii) at least one dispersibility region, wherein the paper product has (a) a dispersibility of at least one tenth of a second, (b) a dry strength, and (c) a wet strength of at least about five percent of the dry strength.





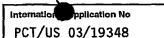
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### INTERNATIONAL SEARCH REPORT

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	International Patent Classification (IPC) or to both national class	incation and IPC	<del></del>	
	SEARCHED currentation searched (classification system followed by classific	cation symbols)		
IPC 7	D21H			
Documentat	ion searched other than minimum documentation to the extent the	at such documents are Inc	tuded in the fields se	arched
lectronic da	ata base consulted during the international search (name of data	base and, where practical	al, search terms used	)
	ta, EPO-Internal, PAJ	•	:	
	THE CONGRESS TO DE SELEVANT			
Category o	ENTS CONSIDERED TO BE RELEVANT  Citation of document, with Indication, where appropriate, of the	relevant nassages	<u>:</u>	Relevant to claim No.
Jule Bork .	Ontainer of document, with statement, where appropriate, of the			
Y	US 5 952 251 A (ONO AUDRIE TOMO 14 September 1999 (1999-09-14) cited in the application the whole document	OKO ET AL)		1-24
Υ	US 3 798 120 A (ENLOE K ET AL) 19 March 1974 (1974-03-19) column 2, line 5 - line 47		·	1–24
Y	WO 01 38638 A (KIMBERLY CLARK 0 31 May 2001 (2001-05-31) cited in the application abstract	00)		1–24
		-/		
	·			
		•		
X Furt	her documents are listed in the continuation of box C.	X Patent fami	ly members are listed	in annex.
	ategories of cited documents:			
	ent defining the general state of the art which is not dered to be of particular relevance	"T" later document poor priority date a cited to understand invention	and not in conflict with and the principle or th	the application but
filing o			idered novel or canno	t be considered to
which citatio	ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another no rother special reason (as specified) tent referring to an oral disclosure, use, exhibition or	"Y" document of part cannot be consi	icular relevance; the idered to involve an in	ocument is taken alone claimed invention wentive step when the ore other such docu-
other "P" docum	means ent published prior to the international filing date but han the priority date claimed		mbination being obvio	ous to a person skilled
Date of the	actual completion of the international search	Date of mailing	of the international se	arch report
2	22 December 2003	02/01/	<b>2</b> 004	
Name and	mailing address of the ISA  European Patent Office, P.B. 5818 Patentlaan 2	Authorized office	er	
	NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Naeslu	ınd, P	

Form PCT/ISA/210 (second sheet) (July 1992)

### INTERNATIONAL SEARCH REPORT



		PC1/US 03/19348
	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 322 665 B1 (LINDSAY JEFFREY D ET AL) 27 November 2001 (2001-11-27) cited in the application abstract column 2, line 64 - line 67	1-24
A	EP 0 802 282 A (UNI CHARM CORP) 22 October 1997 (1997-10-22)	
A	WO 98 24974 A (KIMBERLY CLARK CO) 11 June 1998 (1998-06-11)	
A	WO 97 02376 A (KIMBERLY CLARK CO) 23 January 1997 (1997-01-23)	
A	US 5 466 318 A (BJOERK BENGT) 14 November 1995 (1995-11-14)	
Α	WO 97 08384 A (CYTEC TECH CORP) 6 March 1997 (1997-03-06)	
	·	
		<b>\</b>
		]
	·	}
		}

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

### INTERNATIONAL SEARCH REPORT

Information on patent family members

Internation Populcation No
PCT/US 03/19348

	<del></del>						03/19348
	document search report		Publication date		Patent family member(s)		Publication date
US 59	52251	Α	14-09-1999	AU	730627	B2	08-03-2001
				ΑU	6130298		31-07-1998
				BR	9713793		18-09-2001
				CN	1251628	A .B	26-04-2000
				EP	0950134		20-10-1999
				WO	9829590		09-07-1998
				AU	6289996		05-02-1997
				BR	9609656		24-10-2000
				CA	2222461		23-01-1997
				DE	29624263		02-08-2001
				DE	69616550		06-12-2001
				DE	69616550		11-04-2002
				EP	0835337		15-04-1998
				ËS	2166454		16-04-2002
				WO	9702376		23-01-1997
				US 	5948710 		07 <b>-</b> 09-1999 
US 37	98120 	A	19-03-1974 	NONE			
WO 01	38638	Α	31-05-2001	ΑU	2045101	Α	04-06-2001
				EP	1234072		28-08-2002
				WO	0138638		31-05-2001
				ÜŞ	6548427		15-04-2003
110 62	22665	D1	27 11 2001				
05 03	22665	B1	27-11-2001	AU	1204901		08-05-2001
				BR	0014982		16-07-2002
				DE	10085128		24-10-2002
				GB	2374089		09-10-2002
				WO	0131123		03-05-2001
				US 	2002104633	A1	08-08-2002
EP 08	02282	A	22-10-1997	JP	3150586		26-03-2001
				JP	9132896		20-05-1997
				JP	3150587		26-03-2001
				JP	9132897		20-05-1997
				CA	2208759		09-05-1997
				EP	0802282		22-10-1997
				KR	235789		15-12-1999
				CN	1172515	A ,B	04-02-1998
				WO	9716597	A1	09-05-1997
							25-01-2001
WO 98	24974	Α	11-06-1998	ΑU	729194		
WO 98	24974	A	11-06-1998	ΑU	5360698	Α	29-06-1998
 WO 98	24974	A	11-06-1998	AU BR	5360698 9713842	A	29-06-1998 31-10-2000
 WO 98	24974	Α	11-06-1998	AU BR CA	5360698 9713842 2271384	A A A1	29-06-1998 31-10-2000 11-06-1998
WO 98	24974	A	11-06-1998	AU BR CA CN	5360698 9713842 2271384 1240010	A A A1 A	29-06-1998 31-10-2000 11-06-1998 29-12-1999
 WO 98	24974	A	11-06-1998	AU BR CA CN EP	5360698 9713842 2271384 1240010 0943036	A A A1 A A1	29-06-1998 31-10-2000 11-06-1998
WO 98	24974	A	11-06-1998	AU BR CA CN	5360698 9713842 2271384 1240010	A A A1 A A1	29-06-1998 31-10-2000 11-06-1998 29-12-1999
 WO 98	24974	A	11-06-1998	AU BR CA CN EP	5360698 9713842 2271384 1240010 0943036	A A1 A A1 T	29-06-1998 31-10-2000 11-06-1998 29-12-1999 22-09-1999
 WO 98	24974	A	11-06-1998	AU BR CA CN EP JP	5360698 9713842 2271384 1240010 0943036 2001505627	A A1 A A1 T A	29-06-1998 31-10-2000 11-06-1998 29-12-1999 22-09-1999 24-04-2001
 WO 98	24974	<b>A</b>	11-06-1998	AU BR CA CN EP JP NZ	5360698 9713842 2271384 1240010 0943036 2001505627 336391	A A A1 A A1 T A	29-06-1998 31-10-2000 11-06-1998 29-12-1999 22-09-1999 24-04-2001 29-09-2000
	24974  02376	A	11-06-1998 	AU BR CA CN EP JP NZ US WO	5360698 9713842 2271384 1240010 0943036 2001505627 336391 5935383 9824974	A A1 A1 T A A1 A1	29-06-1998 31-10-2000 11-06-1998 29-12-1999 22-09-1999 24-04-2001 29-09-2000 10-08-1999 11-06-1998
			رجم حجة حجر بني جيّة حجرينات فحد الحد الحداثات العالم العدد العدادات	AU BR CA CN EP JP NZ US WO	5360698 9713842 2271384 1240010 0943036 2001505627 336391 5935383 9824974	A A1 A1 T A A1 A1	29-06-1998 31-10-2000 11-06-1998 29-12-1999 22-09-1999 24-04-2001 29-09-2000 10-08-1999 11-06-1998
			رجم حجة حجر بني جيّة حجرينات فحد الحد الحداثات العالم العدد العدادات	AU BR CA CN EP JP NZ US WO	5360698 9713842 2271384 1240010 0943036 2001505627 336391 5935383 9824974	A A1 A A1 T A A A1 A	29-06-1998 31-10-2000 11-06-1998 29-12-1999 22-09-1999 24-04-2001 29-09-2000 10-08-1999 11-06-1998
			رجم حجة حجر بني جيّة حجرينات فحد الحد الحداثات العالم العدد العدادات	AU BR CA CN EP JP NZ US WO AU BR	5360698 9713842 2271384 1240010 0943036 2001505627 336391 5935383 9824974 6289996 9609656	A A1 A1 T A A1 A1 A	29-06-1998 31-10-2000 11-06-1998 29-12-1999 22-09-1999 24-04-2001 29-09-2000 10-08-1999 11-06-1998 
			رجم حجة حجر بني جيّة حجرينات فحد الحد الحداثات العالم العدد العدادات	AU BR CA CN EP JP NZ US WO AU BR CA	5360698 9713842 2271384 1240010 0943036 2001505627 336391 5935383 9824974 6289996 9609656 2222461	A A1 A A1 T A A1 A A1 U1	29-06-1998 31-10-2000 11-06-1998 29-12-1999 22-09-1999 24-04-2001 29-09-2000 10-08-1999 11-06-1998 

### INTERNATIONAL SEARCH REPORT

Information on patent family members

Internation pplication No
PCT/US 03/19348

Patent document cited in search report	•	Publication date		Patent family member(s)	Publication date
WO 9702376	A		EP	0835337 A1	15-04-1998
			ES	2166454 T3	16-04-2002
			WO	9702376 A1	23-01-1997
			US	5952251 A	14-09-1999
			US	5948710 A	07-09-1999
US 5466318	A	14-11-1995	SE	469420 B	05-07-1993
			ΑT	164115 T	15-04-1998
			ΑU	666699 B2	22-02-1996
			ΑU	3270693 A	28-07-1993
			CA	2123986 A1	08-07-1993
			DE	69224845 D1	23-04-1998
			DE	69224845 T2	04-02-1999
			EP	0617668 A1	05-10-1994
			ES	2115752 T3	01-07-1998
			FΙ	942917 A	17-06-1994
			JP	7504858 T	01-06-1995
			JP	3299540 B2	08-07-2002
			ΜX	9207466 A1	01-06-1993
			NO	942150 A ,B,	09-06-1994
		•	NZ	246408 A ´	27-02-1996
			RU	2097465 C1	27-11-1997
			SE	9103810 A	21-06-1993
			WO	9312936 A1	08-07-1993
WO 9708384	Α	06-03-1997	AT	210221 T	15-12-2001
			AU	701985 B2	11-02-1999
			AU	6780496 A	19-03-1997
			BR	9610138 A	02-02-1999
			CA	2230243 A1	06-03-1997
			CN	1194018 A ,B	23-09-1998
			DE	69617702 D1	17-01-2002
			DE	69617702 T2	08-05-2002
			EP	0846200 A1	10-06-1998
			ES	2169254 T3	01-07-2002
			JP	11511514 T	05-10-1999
			NO	980772 A	24-04-1998
			WO	9708384 A1	06-03-1997
			US	2001051687 A1	13-12-2001
			US	6281291 B1	28-08-2001
			US	6034181 A	07-03-2000
			US	5824190 A	20-10-1998
			ZA	9607202 A	03-03-1997